

LISTing Newsletter

Newsletter of the Long Island
Sinclair/Timex Users Group

JUNE 1995

Next Meeting
JUNE 11, 1995

Time's Up The Crash of 1/1/00

by Dan Rattiner

Scientists know, down to the minute, when catastrophe is going to strike. When I tell you what this problem is you will say that this is no big deal. But it is. It is a deal on the order of 50 or 60 billion dollars. And it is a big deal because the executives of giant corporations who are going to be called upon to spend this money in the next few years may think it is something they can just ignore. It seems so stupid. And so unnecessary. And such a hit on their bottom line. But they will ignore it at their peril.

Perhaps the best way to describe the problem of THE CENTURY DATE CHANGE is to explain how it came about. In 1960 the first practical computers were developed in America. And the programmers, at that time, decided on a shortcut.

They decided that January 1, 1961 could be written as 1-1-61. The "19" part of the year wasn't really necessary. And by writing it as 61 instead of 1961 they could save two keystrokes of memory in the computer. In 1960, this was a very important savings. Corporate executives patted programmers on the back who could save two keystrokes in 1960.

Once having begun expressing the year with only two digits, however, the way computers were built never changed. As the years went by, more data was entered, always noting the year with the two digits only. It would, obviously, become a problem in the year 2000, but that was so far away. A programmer who was 25 years old in 1960 would be 65 when the millennium turned. It wouldn't be his problem. He would be ready for retirement. And he would be ready to start getting his pension.

Pension? Once the computers go past 1999, they record the next year as 00 as in 1900. What pension? Our young computer programmer in the year 2000 wouldn't even have been born from the computer's point of view. There's certainly no pension in that.

It is estimated that there are more than 6000 companies that use mainframes in the United States - built and installed before 1995. And there are so many software packages that deal with projects that are on-going for more than five years - mortgages come to mind, bonds, DMV renewals, credit card calculations, insurance studies and the like that use the two digit system.

This is not going to be pretty. Consider billing systems. Giant companies send out monthly

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We are always looking for articles, programs, reviews etc. to keep our members informed and entertained. You maintain full credit and copyright.

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HARVEY RAIT

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COMING EVENTS: THE NEXT L.I.S.T.
MEETING WILL BE SUNDAY JUNE 11
AT 2 P.M. AT THE HOME OF HARVEY
RAIT (SEE ADDRESS ABOVE).

Report on the meeting of May 7:

The meeting started promptly at
2 PM with 6 members in
attendance.

There were two new memberships
received, as well as a couple of
membership renewals.

After reports by the Treasurer
and Correspondence Secretary, a
discussion was held on methods
to get IBM formatted discs onto
useable QL discs. Bob Gilder
decided that one of the easiest
ways to accomplish this is to
download from a modem.

This topic produced further
discussion of the prospect of
going online with one of our
future meetings so that members
from out of the area that
cannot attend the meeting can
participate.

The subject of using a Public
Access TV station to further
our exposure was broached again
and will be investigated
further.

The meeting was adjourned at
4:30 PM.

LISTINGS FROM HARVEY R.

The next meeting is scheduled for June
11. This will be the last meeting
before our summer hiatus. The next
meeting after that will be on
September 10.

There will be no newsletters during
July and August.

Fred Stern will be making his big move
to Florida soon and brought me
more cartons of old magazines, newsletters
and old hardware.

I've already been warned by my wife to
clean up the "room" so this bodes for
drastic action on my part.

This morning I deep sixed 4 old floppy
drives, and more stuff will be dumped on
trash pickup day.

It's too bad that so many of our user
group membership is out of town, because
I'm sure that they would love to have
these items for their own libraries.

Because of a fairly long contribution
from John Pazmino in this month's
newsletter, my policy of trying to have
articles for all of the various models
will have to be bent a little.

I would like to hear from our member-
ship in regard to what they would like
to see in our newsletter. This could be
suggestions for more programs, hardware
reviews or just plain old up to date
news of the world of Timex Sinclair.

Having trouble with SAVEs and LOADs
on your TS1000, ZX81 or TS1500? Try
this:

1. Turn down the volume level to zero
before SAVEing.
2. SAVE.
3. Return to normal level at which
you LOAD your programs.

You should now have a program that
will reliably LOAD 98+ percent of the
time.

EDITOR'S NOTE: This tip eliminates
the feed-back loop sometimes caused
when SAVEing and LOADING. This even
holds true on the TS2068, but to a
lesser extent. You could also unplug
the EAR wire from both the computer
and the recorder when you are
SAVEing.

QL CORNER

Last April I received a letter from Ruth Fegley stating - whew - just had a scare! When I powered up just now I noticed that the Trump Card identification hadn't appeared on the initial screen; so, of course, F1 merely brought on the light and buzz of the microdrive. After the first panic reaction I tried putting slight pressure on the Trump Card to increase the contact, and it did the trick. My concern now, however, is "wha happen?" since I had used it an hour earlier and don't think I had touched anything differently. So I'll will keep my fingers crossed. (You may or may not know that I've never had enough confidence in my skill to "plug" and "unplug" the darn thing, so there's no way that I'm going to try checking out the contact points!) Guess maybe I'll take it to CATS this Saturday and have one of the guys look the setup over for me. My answer to Ruth is below:

Anyway, your scare with your QL not initializing is a common problem with all computer interfaces that have had many hours of use. Oxidation forms on the interface pins and by pressing the interface towards the QL body tends to remove the oxidation. You did well and I will reprint that portion of your letter regarding your scare in the June issue of QL Corner, if you don't mind.

Several weeks ago, Bob Malloy telephoned me that several of his QL's were not operating and I requested that he bring the faulty QL's to my home and I will see if I could get them going for him. Within 10 minutes of the telephone call Bob arrived with FOUR faulty QL's.

Each of the four computers had the same symptoms - one or more of the socketed IC's had to be reseated into their respective sockets and the QL's then operated as they should. Also, the Keyboard 90 interface also had had to be reseated into it's respective socket.

Periodically, all plugged-in devices such as interfaces and IC's should be partially removed and then pushed back into their respective sockets for flawless computer operation; without power on!

On Sunday, May 21st, Bob Malloy and I went to a Hamfest, Sunday, May 21st, hosted by the Long Island Mobile Amateur Radio Operators, at Briercliff College in Woodbury, NY. I was looking for some IBM 84 key keyboards for spares for my Keyboard 90 interface. One vender had several new 5150 keyboards for \$10.00 each. I decided that I would look around for a better deal and if not, I would purchase one of those keyboards. Approximately 15 minutes later, I happened upon a vendor with two brand new AT keyboards. I asked for the price and he replied "One dollar each". Needless to say, I purchased both keyboards and when I returned home and plugged them into the Keyboard 90 interface, they both worked fine without any switch adjustment on the interface. The admission to get into the Hamfest was \$6.00 - so I guess that each keyboard cost me \$8.00 total. Every once in a while, I come up with a good deal.

Would you believe this? After writing the first few paragraphs for this article, I turned off the QL. Several hours later, I attempted to initialize the same QL. Appearing on the screen were black and white vertical black and white lines with two lines of text appearing at the top of the screen.

"The Gold Card does not recognize the ROM"
"Contact Miracle Systems Ltd."

I immediately opened the computer case, wiggled the Minerva Rom board and the Gold Card interface. The power was applied to the QL and has been operating since then. Ruth and Bob have nothing on me!

In the latest issue of Electronics Now, July 1995, page 5, an add appears for Electronics Technology Today Inc., P. O. Box 240, Massapequa, NY 11762-0240, a book titled "Counting on QL Abacus", price \$4.95 plus \$2.00 postage. I have several books from this company who is a distributor for Babini Books in the UK. I will purchase the book and review it in a future issue of QL Corner. Electronics Technology Today accepts money orders, checks cash only - NO Credit cards!

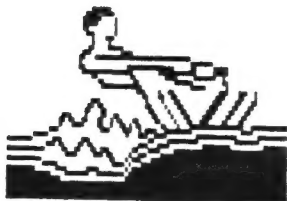
Tom Skapinsky, LIST Librarian, attended an IBM show on Sunday, May 21st. Tom had mentioned to me some time ago that ED drives were selling for approximately \$40.00 each. I asked Tom if he came across any ED drives at that price, would he purchase two of the ED drives for me. Tom found a vendor with three SONY ED drives at \$35.00 each. Tom purchased all three drives, one for himself and the remaining two drives for me. I will pick up these jewels at the next LIST meeting, Sunday, June 11th. Luck is smiling down at me!

Several months ago, I had mentioned that I could not send data from my Z88 to the QL. In the latest issue of UPDATES Magazine, Frank Davis stated that some of the data transfer cables for the Z88-QL sent out have a wiring error. I will send my cable back to Mechanical Affinity shortly.

I have received a package of four disks consisting of large dictionarys (US, English and an assortment of other foreign countries) and the program SOLVIT-PLUS2. Harvey Rait will review this program for IQLR. Harvey doesn't have a Gold Card, HD or ED drives (some of the dictionarys are very large). All data is archived with ZIP. The total package UNZIPed consist of eight HD disks and one ED disk. I have advised Harvey that he can have the loan of one of my spare QLs with MINERVA and a GOLD CARD and an ED disk drive. Have fun Harvey over this summer!

As a reminder to all LIST members, during the summer (July and August), there are no LIST meetings and we do not publish the LISTing newsletter during the two summer months. Have a great summer!!!!

See you in September... Bob Gilder



NEW AMERICAN SINCLAIR BBS by B Newell

[John Pazmino DLed this announcement from COMP.SYS.SINCLAIR regarding a new BBS for Sinclairs in the United States. The author did not give his name explicitly, but 'B Newell' is the decoding of his Internet name. He communicates thru the Delphi infoservice in North Dakota. The GobblerNet BBS is on the wires as at presstime for this LISTing.]

I have started a BBS here in the US called the "GobblerNet" classic games BBS. Within a couple of days I will have a nearly complete dump of the Chile archive site and a few other things as well. Since there is a question of copyright, I make the offer that if any copyright owner finds anything on the BBS that is in any manner objectionable I will remove it at once. Furthermore the GobblerNet Classic Games BBS does not solicit and will not accept any compensation or payments of any type, under any guise. In other words, I don't want even a hint of an idea that anyone is making any profit!

I realize this is not of interest to folks with Internet access, but it may be for folks that don't have FTP access and can pay the occasional long distance call. It is in Bismarck, North Dakota, 701-222-0429, 8n1, v.32/v.42, 2400-14400. I have been piloting it for a month locally (area population very small, about 65,000) and it has had almost no interest, which just shows you that people don't all appreciate the good things!

[This is a UNIX-based BBS and requires careful attention to the screen prompts. You must have VT-100 terminal emulation in your telcomms software. The first time you call in you logon as 'new' and then supply a logonID and password. The board gongs you out and you must call it again to continue your registration.

On the second call you supply some personalia and your are advised to download ALLFILES.ZIP, a dump of all files on GobblerNet. Don't!

In the stead, move to the Spectrum fileroom and open your capture buffer or session logger. Now do a screen-by-screen list of the files; this is echoed into your logging file for later use. This method gives a more compact listing than ALLFILES.ZIP and has just Spectrum stuff.

For each file the list gives the DOS filename, size and date, and a note that a Spectrum emulator is required. You must be wisely with Spectrum world to dope out the full name and content of the program from the DOS filename. There are virtually no decent descriptions for the files, not even a proper title or category. You're on your own.

Overwhelmingly the files are Spectrum games, but many utilities and productivity programs are carried. All files are ZIPed; you need PKUNZIP.EXE to rehydrate them. The files are an olio of TAP, Z80, and SNA formats. all digestable by Gunter's Z80 Spectrum emulator.

You get 25 minutes per day on GobblerNet so you better review the fileroom dump for the desired files before calling in. Offsetting the brief online time is the overall short filelengths (these are Spectrum programs, remember?). All the common file transfer modes are supported. Mind, too, the LD charges from the City to North Dakota!]

LISTings in fall 1993 carried my deep review of Z80, the Killer Emulator from Hell, the Spectrum-in-an-IBM. Z80 has since spread far and wide thruout the Spectrum world and became the definitive Spectrum emulator. So far no other emulator, on any platform, rucaks Z80 for fidelity to the Spectrum, extra features, versatility, and overall ease of use. In October 1994 it issued version 3, retaining all the functions of the former version 2 and adding many new features:

a) full duplication of the Disciple discdrive system. This is of little use for Americans, who never enjoyed this British disc system for the Spectrum.

b) complete replication of the Z80 CPU undocumented opcodes. These are used by some Spectrum programs altho Zilog, the chip's maker, never vouched for them.

c) reading tapes thru a SoundBlaster (or compatible) card's input socket. Thus, being that more and more new IBMs come with such cards, no extra attachments are needed to get your tapes into the emulator.

d) translating tapes into VOCfiles. This is the sound sampling format for the SB system. A VOCfile is an acoustic image of the original tape.

e) joysticks are mapped to Microsoft mouse. This frees the numberpad for cursor movements and makes for more natural games play.

f) LPRINT, LLIST, and COPY work directly thru Epson or LaserJet printers with no need for cutting in serial port simulation.

g) Spectrum 128 system emulation is more complete. This, however, was a minor system even in England and was a nonissue in America.

h) additional machine code utilities and a Multiface 128 addin. This emulator has built in all those tools that were extras for the real Spectrum for exploring and writing Z80 machine code.

i) expanded technical treatment of the Spectrum and its accessories in the ondisc manual. There is gumbo here that was underappreciated when the tral machine flourished.

j) various manipulations to better utilize the IBM hardware, such as extra memory and the speaker.

Z80 comes on a single 90mm stiffy that rehydrates into a directory on the harddisc. Auxiliary files go into directories under the prime one. From there you invoke Z80 by 'Z80'. There is a repertoire of vommand line switches to tune the emulator for your default preferences and thses can be embedded in an ignition BATfile. The emulator self-detects the videocard, preferibly VGA or higher.

A few sample Spectrum programs are thrown in to get you started and Z80 can read those saved from earlier versions. On fireup you get a colorful Z80 screen and then the oh-so-tearfully-remembered Spectrum prompt. At this point you are verily operating a Sinclair Spectrum on your IBM. No ands, ifs, or buts.

You can do anything with the emulator that you could do with the real instrument except drive Spectrum accessories that plug into the edge connector. However!, addins that plug into the serial port of the Interface I can be operated, like a modem or AD board. You first switch the RS232 port of the Interface I to your COM1 or COM2 port. Oh?, yep, the Interface I is built into the emulator.

As for getting your old tapes into the computer there are now two routes. One is the LPT1 socket via a special connector. You can wire this up yourself from a diagram included in the instructions but I do warn you. I made this little thing when I got Z80 two years ago. It unravelled after a few months and I had to suspend tape transfer into the computer. Try to overbuild the unit if you can.

You really are better off getting the readymade interface. This is a nicely finished hood of a printer connector with two audio sockets where a cable would emerge. A one is for LOAD; the other, SAVE. There's a pokehole for a tunable resistor to tweak the signal and a tape testing program to gage the results. I found the unit works perfectly straight from the box.

You can also go thru the SoundBlaster card but we in LIST find this rather quirky. We got frequent tape loading errors. The SB does work but you'll have a tough try at it.

You can not use the printer port for printing with the connector attached. I tried a switchbox. It got too fiddly and there was some rough up of the tape signal as it passed thru the box. First get all your tapes into disc form with the connector. Spend a snotty weekend doing this. Then replace the printer for running the programs.

As you load the tape you have three destinations for its associated discfile. Oh, the tape actually does load into the computer; it's echoed into a discfile. You can mirror the tape as an IBM discfile that mimics the tape when it is loaded into the emulator. This is a TAPfile and is the one I myself favor. A TAPfile has within it all the separate files from the tape and to the emulator it acts like a very rapid tape.

The TAPfile is probably the best form for multiload tapes, where after completing the first part you are instructed to load in the next. All these files are strung out in a TAPfile just as they are laid out on the tape. Be aware, however, that many programs will not let you load the next section unless and until you duly finish the first! Completion of the first part gives you, for example, a special codeword to key in that initiates loading of the next portion.

Even for the longest tapes it's at most 50Kb long and about 25 of them can fit on a 1440Kb stiffy. A box of ten stiffies, then, can embrace around 250 tapes. (Hey!, that's your entire tape collection!!)

You can save the tape as a Z80file. This is actually a snapshot of the Spectrum RAM, all 48Kb of it, as one single logical file. It's comparable to what you get from a Multiface snap.

Soonest the program loads and the first activity on the screen begins, mash the snapshot key. This saves the program so it starts off at its true beginning point, like it would if loaded from tape.

If you wait until some later moment you get a snapshot that when loaded starts off at that same moment. This is handy if you have to suspend a program for later resumption. Not all games, for instance, have an innate 'save game' feature!

Multiload tapes get clumsy to work with in this form! Each portion is in its own Z80file which you must keep track of.

You can save the tape as a sound sample in a VOCfile. This file will faithfully and dependibly load from the SoundBlaster system. It's that very first loading that has to be made from the LPT1 connector.

You can capture any Spectrum sound output into a VOCfile, raising up all sorts of interesting prospects. For one, the emulated Spectrum can be a viable MIDI controller. The real machine could not due to its scrawny memory. The emulated one uses all the available memory on the IBM for the sample files.

Send the VOCfile thru the SB onto a cassette tape. You got music recorded by a Spectrum, perhaps the makings of a novel musical movement? Play a VOCfile of the original tape and you get that wonderful "KKKKEEEeeeKKKKkkKEKEEkkkeeeeeeekkeEKEK" from leaving out the 'ear' jack on the cassette deck. Or send that VOCfile out to the cassette deck to make tape duplicates.

Printer output is weird. It comes out like the old Sinclair printer, even on a superduper LaserJet! The page is 32 chars wide, half the width of a letterpage. Using a booklet program on the LJ

printer gives you double column printing on the same sheet as if you pasted together two strips of old Sinclair print paper. All the Sinclair chars are faithfully reproduced, down to the little dots. Oh!, but the dots are perfectly round and sharp now.

LPRINT on a LJ is a bit daff. The page is printed line by line but ejects only when it is full to the bottom. To generate a formfeed, code in a LPRINT statement the proper LaserJet code sequence.

On an Epson printer the output is all dotty as if it came from some plain paper model of the Sinclair printer. Still quite pleasing never the less. Z80 is limited to just LaserJet and Epson output but virtually every printer in creation must simulate one or the other (or both!) of these two standards. You'll get Sinclair output on what so ever printer you already got; set it to the appropriate simulation.

You can LPRINT, LLIST, and COPY without a printer! First set the emulator to redirect the LPT1 output to disc and supply a filename for the writefile. As you run your program the output of these three statements goes into the specified file.

The file is a TAPfile and you must keep it spearate from the TAPfiles that contain true programs. The layout of this file is that for the LaserJet or Epson printer as you set the emulator for. It's best that you soonest change the filetype to 'LJ2" or 'EPS' so you know it is a printer file. Later you can send thru DOS this file to the printer.

Contemporary IBMs are much advanced over the ones around for v2 of Z80; they run the Spectrum at many times the original speed. Such speeds make it impossible to type at the keyboard. You get dozens of every keypress! Gear down the speed to 100%. Oh, maybe you can push it to 200% to cut the languidity of the cursor movement.

For program running you can ratchet up the speed depending on the nature of the program. Those which run without your intervention, like calculations, benefit from fullsteam speed. Games where you control a character thru a scene better be tempered in speed. Set it too fast and you're asking for holocaust as the alien baddies swarm around you.

100% is also the safest speed for the inital loading from tape. At this rate the tape 'sees' a real Spectrum and anything that loaded into that will load into the emulator. I find that reliable loading occurs between 90% and 110%. I note this because the emulator may offset the speed for various options cut in during the loading.

A word or two about tapes. We built up our tape collections a decade and more ago and we likely hadn't played the tapes since then. They sit in boxes on some back shelf. Are they still legible? Did the Earth's magnetism slowly corrupt the signals? Did that heatwave last year cook them? What happened when the water pipe dripped on them? With my experience from v2 in 1993 and with v3 in 1995, the tapes are still loadable provided they haven't suffered physical damage as by heat or water. Once the tape is converted into a discfile you may pack it up again for storage. You henceforth load only from the discfile.

Of more serious concern is the fate of the litterature for the original tapes. Do you still have the inserts with instructions? The game booklets? The code wheels? One game I transfered to disc I simply can not play. It first off asks for a number read from a coding sheet I no longer have!

Equally frustrating is an instruction whose printing faded over the years. One such I have was deliberately done in cyan on blue paper to thwart photocopying. Well, the two faded into a bluish-gray mush.

Yes, there is little new software for the Spectrum. The instrument is out of production since 1986 and is thoroly orphaned. Or is it? With the advent of this Z80 (and other less potent) emulator there is a revival of the Spectrum. There are emulators for other platforms, too, and they seem to enjoy a large following.

I dare say that there may be as many active Sinclair players now at century-end as there were in the halcyon days of the real McCoy. The bulk of them are the grownup kids from the early 80s, but there is a new flock among computerists smitten by the little Sinclair.

There is another astounding development that strengthens Sinclair today, one missed out from our craziest dreams of the Reagen years. Internet.

When we played with the Spectrum telecommunications was just dawning. We messed around with Mterm on 300 baud modems that cost \$200. We were like our grandfathers with their crystal radios or Morse keys. The idea that we could talk to people all over the world by typing on a keyboard was a sci-fi fantasy. (Except that the sci-fi writers couldn't swallow it.)

Internet erupted into the general computerist's home in mid 1993, the result of a massive collapse of the cost and complexity of setting up Internet connections. In fact, so rapid has Internet grown that over half of the 200 million people now attached to it signed up during 1994! Today via Internet I correspond with Sinclair fans all over the world -- including the once-off-limits Soviet Union. I do so thru a local phonecall at a cost less than my daily coffee and bagel.

Hence in a way which the real Spectrum never knew, its fans are linked up to exchange assistance, ideas, tips, buy & sell notices, publicity for LIST, and even actual Spectrum programs.

Programs? Yes! We in America never plugged into the British mainstream of Spectrum. We grabbed at whatever crumbs we could find in magazines and news from across the Pond. We never had the joy to walk into a shop and buy a Spectrum tape. We never had a decent accessories industry here. We made do with the halfbaked efforts from a this or that chap's kitchen table. The TS2068, as welcome as it was back then, was really a crudelous joke.

Today, we in America have the same entree to Spectrum programs as the Englishman. Programs are uploaded to various Internet FTP and WWW sites, all waiting for you to download. These are the games of fame and fable we missed out on.

Hay!, weren't these commercial products under copyright?! Yes, they were. Their publishers abandoned the Spectrum and are themselves long gone. A few companies purposely announced that their Spectrum material is out for public use.

The tacit rule is that as long as there is no commercial intent or effect, the sheer passage of time with these programs out of circulation lets them flow freely around the world on Internet.

There is no restraint against downloading the programs. You may in reciprocity upload any Spectrum program into Internet. The rumbling to the contrary is purely an emotional self-flagellation.

I mentioned earlier that the Disciple disc system was not prevalent in the US. We hacked around with the Oliger, Larken, and Aerco drives with mixed success. A few fortunate ones of us got the Portuguese drives, the closest to a credible system for our Spectrum.

The Z80 emulator is modularized so you can run the ROMs of any system in the place of the Disciple system. How? You must have the original hardware to start with. Call up the other system and capture its ROM onto tape as code. Then load this code into the emulator and capture it as a BINfile of raw bytes. Leave the emulator. In DOS run a code editor and patch the BINfile into the emulator code in the place of the Disciple block. The instructions lay out the code blocks so you know where things are. Still, you have to know what you're doing.

Now all of this merely brings the IBM discdrives into action as tho they were Larken, &c, drives. You can not read a true Larken disc on the IBM! You must use the prime cassette for the initial loading and save it as a Larken image on IBM disc. Whew!

Finally, how do you get this emulator? You will get both the software and the cassette-printer interface. Don't argue, you will get the both, yes? Attach to your letter \$40 in US cash, like two \$20 bills. This is a bit more than the raw exchange rate because there Svc still is a small fee to convert cash into British pounds. The banks have gone hatstand, charging huge fees for converting checks or money orders, in the interval since I got the v2 emulator. So cash is the easy way out. No, as yet creditcards are not viable. If you are queasy about sending cash thru the regular mails, you're normal. Send the lot by UPS, FedEx, DHL, or the like.

Where to? OK, write this down, kids:

B G Services, 64 Roebuck Road, Chessington, Surrey KT9-1JK, ENGLAND

The manager and owner of B G Services, Brian Gaff, gets the package to you in under a month. It took two weeks for me, but that's to New York. If you want to talk things over first, bung a post to him at his Internet address: BRIANG@BGSERV.DEMON.CO.UK.

(CONTINUED FROM PAGE 1)

statements that add interest based on when the transaction took place. On New Year's Day 2000, these computers will express the year as 00. The computer will think the transactions are more than a 100 years old and will charge interest accordingly. Care to make a credit card transaction? In the year 2000, according to the two digit system, the expiration date of the credit card will be earlier than the transaction date. Transaction denied. And then there are time zone problems. A call made from San Francisco to New York at 2 a.m. on January 1, 2000 will, because of the changes in the time zones, be billed as a 99 year phone call. The scope of the impending catastrophe boggles the mind.

According to Peter Harris of AD-PAC, it is possible to fix existing systems but it is an expensive and laborious task similar to that of putting toothpaste back in the tube. Harris talks about millions of lines of coded instructions written by the original programmers that must be "decompiled," and converted into computer languages such as Cobal where they can be modified to express the year as four digits instead of two and then put back into the calculations and returned into the computers.

A point made by William Ulrich, CEO of Tactical Strategy Group is that nobody at large corporations wants to hear this stuff. The costs of making this fix are huge and they are an expense borne with negative impact to the bottom line.

Bill Goodwin, who has a consulting firm called 2000AD, says, "This (fixing of the world's computers) is going to be the biggest maintenance job ever done."

But back in the 1960, who knew? Saving two keystrokes meant saving 16 bits of information (8 bits a byte). And computers needed every bit they could get. That you can buy a plug in chip for your computer today that will add about four million bits of information for about \$49 makes it only seem that much more ludicrous.

In 1960 there were almost no computers. Today there are tens of millions of them. There is one group of scientists who believe that the turning of the millennium will not foul everything up in a jumble of numbers but will instead result in one gigantic computer crash.

If that happens, we will be on a trip back in time, to an era when people talked to one another, when telephones had to be dialed, when timers were wind-up, when all clocks had hands on them, when messages were taped to front doors rather than sent E-Mail and when all calculations had to be done with pencil and paper, and then afterwards doublechecked.

Maybe this wouldn't be so bad.

Dan Rattiner is Publisher of Dan's Papers
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